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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,694	09/29/2003	John E.A. Shaw	117352	7414

25944 7590 12/05/2006

OLIFF & BERRIDGE, PLC  
P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER

WONG, EDNA

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 12/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/671,694

Applicant(s)

SHAW ET AL.

Examiner

Edna Wong

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-73 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-73 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims **1-34 and 66-68**, drawn to a micro-engineered reactor for performing chemical synthesis, classified in class 204, subclass 257.
- II. Claims **35-37, 46-65 and 72-73**, drawn to a method of performing chemical synthesis, classified in class 205, subclass 334.
- III. Claims **38, 40-44 and 70-71**, drawn to a method of preparing a synthetic organic compound, classified in class 205, subclass 413.
- IV. Claims **39 and 69**, drawn to a method for preparing a synthetic organic compound, classified in class 205, subclass 413.
- V. Claim **45**, drawn to a method of performing chemical synthesis, classified in class 205, subclass 334.

The inventions are distinct, each from the other because of the following reasons:

Inventions II-V and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced by another and materially different apparatus such as a photoelectrochemical apparatus.

Inventions II and III are unrelated. Inventions are unrelated if it can be shown

that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions have different designs, modes of operation, and effects.

Group II is directed to a method requiring the step of electrolysis the source material to form a primary product at, or adjacent to, a surface of the electrode that communicates with the interior of the reaction chamber.

Group III is directed to a method requiring the step of electrolysis the source material and allowing the electrolysed source material to react with the sacrificial material to form the primary product at, or adjacent to a surface of the electrode.

Inventions II and IV are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions have different designs, modes of operation, and effects.

Group II is directed to a method requiring the step of electrolysis the source material to form a primary product at, or adjacent to, a surface of the electrode that communicates with the interior of the reaction chamber.

Group IV is directed to a method requiring the step of electrolyzing the source material to react with the sacrificial material to form the secondary product at, or adjacent to, a surface of the electrode.

Inventions II and V are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions have different designs, modes of operation, and effects.

Group II is directed to a method requiring the step of electrolysing the source material to form a primary product at, or adjacent to, a surface of the electrode that communicates with the interior of the reaction chamber.

Group V is directed to a method requiring the step of electrolysing said source material in said second chamber so as to produce said primary product at a surface of the fluid permeable electrode that is in communication with the interior of the reaction chamber.

Inventions III and IV are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions have different designs, modes of operation, and effects.

Group III is directed to a method requiring the step of presenting a source material to at least the electrode that consists of, or has deposited thereon, the sacrificial material.

Group IV is directed to a method requiring the step of presenting an organic material to at least the electrode that consists of, or has deposited thereon, the

sacrificial product.

Inventions III and V are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions have different designs, modes of operation, and effects.

Group III is directed to a method requiring the step of presenting a source material to at least the electrode that consists of, or has deposited thereon, the sacrificial material.

Group V is directed to a method requiring the step of electrolysing said source material in said second chamber so as to produce said primary product at a surface of the fluid permeable electrode that is in communication with the interior of the reaction chamber.

Inventions IV and V are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions have different designs, modes of operation, and effects.

Group IV is directed to a method requiring the step of presenting an organic material to at least the electrode that consists of, or has deposited thereon, the sacrificial product.

Group V is directed to a method requiring the step of electrolysing said source material in said second chamber so as to produce said primary product at a surface of the fluid permeable electrode that is in communication with the interior of the reaction chamber.

The methods of Groups II-V contain steps that are methodically different from each other and are not required for each other.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art due to their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

***If Applicants elect Group II, then Applicants would have to elect a species:***

This application contains claims directed to the following patentably distinct species:

- (a) synthesis of lithium, sodium, or potassium alkyls (claim 46);
- (b) synthesis of sodium naphthalenide (claim 47);
- (c) synthesis of potassium naphthalenide (claim 48);
- (d) synthesis of sodium anthracenide (claim 49);
- (e) synthesis of potassium anthracenide (claim 50);
- (f) synthesis of sodium phenanthrenide (claim 51);
- (g) synthesis of potassium phenanthrenide (claim 52);
- (h) the conversion of organotin compounds (claims 53-55);
- (i) the generation of sodium, lithium or potassium alkoxide or phenoxide (claim 56);
- (j) the removal of halides from aromatics by sodium metal (claim 57);
- (k) carrying out a birch Reduction of compounds (claim 58);
- (l) the generation of Grignard reagents (claims 59-60);
- (m) the generation of halogenated products (claims 61 and 63-64);
- (n) the generation of halogenated products (claims 62 and 72-73);
- (o) the generation of ylids from phosphonium salt cations by the Wittig reaction (claim 65).

The species are independent or distinct because the method steps react different



materials.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims **35-37** are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not

distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

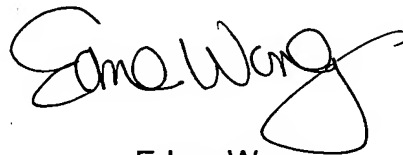
Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Edna Wong", with a large, stylized loop at the end.

Edna Wong  
Primary Examiner  
Art Unit 1753

EW  
December 2, 2006